sour, juicy, refreshing stems might often be very serviceable to travelers if acquainted with its properties.

From the summit of the Burros the eastward slope stretching away for thirty miles, to the base of the Santa Ritas, descends so very gradually that the whole tract appears more like an elevated plain than like a mountain slope. The vegetation is that of the higher south-western plains, there being no trees, few bushes, in fact not much but grasses and numerous species of the vast genus Astragalus. The Astragali that grow here (*A. mollissimus* Torr.; *A. missouriensis* Nutt.; *A. humistratus* Gray; *A. cobrensis* Gray; *A. shortianus* Nutt., and *A. nuttallianus* Gray) are mostly very handsome sorts, with more or less white, silky foliage, and fine racemes of rich violet, or pink, or purple flowers, quite different from the rattle-podded things of the same genus which occupy the plains at the western base of this same range of hills.

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RECENT LITERATURE.

LeConte's Geology.[1]—The body of this work is divided into three parts, treating respectively of dynamical, structural and historical geology. The author devotes the large space of 160 pages to the consideration of the dynamical agencies concerned in producing crust-modification. Atmospheric, aqueous, igneous and organic agencies are successively considered. Erosion due to rain and rivers, the action of waves and tides, glacial action, chemical agencies, each receive a full share of attention, with good illustrations. The subject of earthquakes and volcanoes is fully and elaborately discussed and the great geyser district of the West receives more attention than has been devoted to it hitherto in any popular work. The illustrations of the great geysers, from the Reports of Hayden's Survey, give the book a freshness that will be appreciated by all American students. The section devoted to the consideration of reef-formation is full of valuable matter with well chosen illustrative diagrams, as is also that on faunal and floral distributions.

The hundred pages devoted to structural geology is an unusually large proportion for this subject, but the many varieties of faulting and unconformability due to various causes, and which are calculated to puzzle the young geologist, require the full elucidation which they receive in the work.

[1] *Elements of Geology.* A Text-book for Colleges and the General Reader. By Joseph LeConte, Professor of Geology in the University of California. 903 illustrations. 8vo, pp. xiii, 588. D. Appleton & Co., New York, 1878. Price $4.50.

To the historical part the author devotes about 300 pages, which, as he informs us in the introduction, has been considered throughout from the standpoint of the evolution hypothesis. This is a new and commendable feature in an American text-book, as previous authors have made it only a secondary matter.

The earlier floral and faunal characteristics of the American continent are illustrated by well chosen figures from the works of Dawson, Hall, Meek, Worthen, Gabb, and others. The carboniferous flora receives a large share of attention, with many figures from Dawson and Lesquereux. Some of the figures of vertebrate remains are not as good as they might have been; some, as those of *Glyptodon*, *Megatherium* and the head of *Sivatherium*, are restorations made before enough of the skeleton was known to make exact figures, which have since been superseded by more recent studies from more perfect material.

The value of this part of the work is somewhat curtailed by the use in some instances of a nomenclature which is not used by European or many American palæontologists. As examples we cite the names *Edestosaurus*, *Tylosaurus*, *Lestosaurus* and *Dinoceras*, which have never been distinguished from genera previously named, and *Brontotherium*, which there can be but little doubt is the same as the genus long since called *Titanotherium*, by Leidy, and still earlier *Menodus* by Pomel.

FOSTER'S PHYSIOLOGY.[1]—In introducing advanced students to the study of physiology, Mr. Foster starts from a description of the Amœba and its physiology, and having described the vital qualities of the protoplasm of an Amœba, he leads the reader to study the vital qualities of the higher animals, which, as taught by morphological studies, "are in reality groups of Amœbæ peculiarly associated together. All the physiological phenomena of the higher animals are similarly the results of these fundamental qualities of protoplasm peculiarly associated together. The dominant principle of this association is the physiological division of labor corresponding to the morphological differentiation of structure. Were a larger or 'higher' animal to consist simply of a colony of undifferentiated Amœbæ, one animal differing from another merely in the number of units making up the mass of its body, without any differences between the individual units, progress of function would be an impossibility. The accumulation of units would be a hindrance to welfare rather than a help. Hence, in the evolution of living beings through past times, it has come about, that in the higher animals (and plants) certain groups of the constituent amœbiform units or cells have, in company with a change in structure, been set apart for the manifestation of certain only of the fundamental properties of protoplasm, to the exclusion

[1] *A Text Book of Physiology*. By M. FOSTER, M.A., M.D., F.R.S., Prælector of Physiology and Fellow of Trinity College, Cambridge. London: Macmillan & Co., 1877, 8vo, pp. 559.